

Geometry · Rigid Transformations · Quiz

Common Core G-CO.A.2, G-CO.A.3, G-CO.A.4, G-CO.A.5 · mathovore.fr

Name: _____ Date: ____/____/____ Score: _____

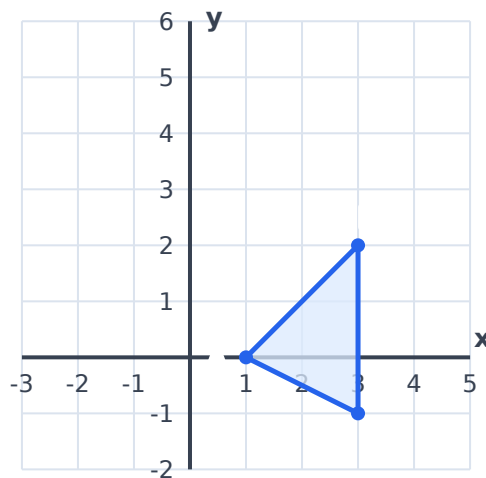
This 10-question quiz checks translations, reflections, rotations, rigid versus non-rigid rules and symmetry on the coordinate plane. Choose the one best answer for each question.

GeometryCommon Core: G-CO.A.2 · G-CO.A.3 · G-CO.A.4 · G-CO.A.5

Questions

Question 1

Triangle ABC is translated by the vector $\langle -5, 3 \rangle$. What are the coordinates of B'?



B is at (3, 2).

- A. (8, -1)
- B. (-2, -1)
- C. (-5, 3)
- D. (-2, 5)

Question 2

What is the image of (-4, 7) after a reflection over the x-axis?

- A. (4, 7)
- B. (7, -4)
- C. (-4, -7)

D. (4, -7)

Question 3

What is the image of (2, -6) after a reflection over the line $y = x$?

- A. (-6, 2)
- B. (6, -2)
- C. (-2, 6)
- D. (2, 6)

Question 4

What is the image of (3, -5) after a rotation of 90° counterclockwise about the origin?

- A. (-5, -3)
- B. (-3, 5)
- C. (5, 3)
- D. (-5, 3)

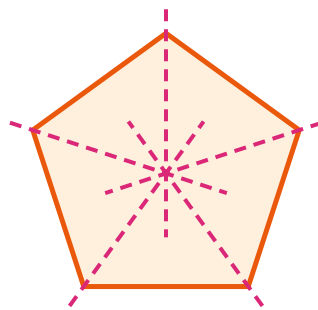
Question 5

Which rule does NOT describe a rigid transformation?

- A. (x, y) to $(3x, 3y)$
- B. (x, y) to $(x - 6, y + 1)$
- C. (x, y) to $(-x, y)$
- D. (x, y) to (y, x)

Question 6

How many lines of symmetry does a regular pentagon have?



Regular pentagon.

- A. 10
- B. 3
- C. 1
- D. 5

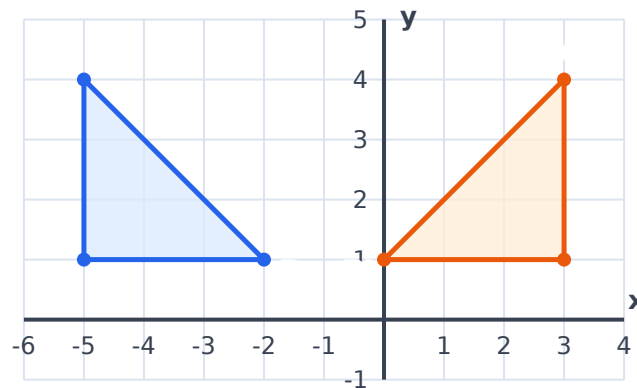
Question 7

What is the smallest positive rotation about its center that maps a regular hexagon onto itself?

- A. 30°
- B. 120°
- C. 60°
- D. 90°

Question 8

Triangle ABC is reflected to triangle A'B'C'. Which line is the line of reflection?



Pre-image and image.

- A. the y-axis
- B. the line $x = -1$
- C. the line $y = x$
- D. the line $x = 1$

Question 9

The point (2, -1) is reflected over the y-axis and then translated by the vector $\langle 0, 5 \rangle$. What is the final point?

- A. (2, 4)
- B. (-2, 4)
- C. (-2, -6)
- D. (2, -6)

Question 10

A rotation of 90° about the origin maps segment AB, which is 7 units long, onto segment A'B'. How long is A'B'?

- A. 14 units
- B. 3.5 units
- C. 49 units

D. 7 units

Answer key

1. **D** – Add the vector to B(3, 2): $(3 - 5, 2 + 3) = (-2, 5)$. (8, -1) subtracts the vector instead.
2. **C** – Reflection over the x-axis keeps x and changes the sign of y. (4, 7) is a reflection over the y-axis.
3. **A** – Reflection over $y = x$ swaps the coordinates. (-2, 6) is the reflection over the line $y = -x$, a common mix-up.
4. **C** – Use (x, y) to (-y, x): (3, -5) becomes (5, 3). (-5, -3) is the clockwise rotation.
5. **A** – Multiplying both coordinates by 3 triples every distance, so it is a dilation. The other rules are a translation and two reflections.
6. **D** – A regular polygon with n sides has n lines of symmetry, so a pentagon has 5. A rotation of 72 degrees, not 5, is its smallest turn.
7. **C** – The smallest angle is $360 \div 6 = 60$ degrees. A 120-degree turn also works, but it is not the smallest.
8. **B** – The midpoint of A(-5, 1) and A'(3, 1) is (-1, 1), so the mirror is the vertical line $x = -1$.
9. **B** – Reflection gives (-2, -1). Adding 5 to y gives (-2, 4). (2, 4) skips the reflection.
10. **D** – Rotations are rigid, so they preserve length. A'B' is also 7 units. The other values come from wrongly scaling the length.

Remember:

- Standards G-CO.A.2 to G-CO.A.5 cover transformations as functions, symmetry, precise definitions and drawing images.
- Translations, reflections and rotations preserve distance and angle measure; dilations and stretches do not.
- Reflection over $y = x$ swaps coordinates: (x, y) becomes (y, x).
- A 90-degree counterclockwise rotation about the origin sends (x, y) to (-y, x).
- A regular n-sided polygon has n lines of symmetry and rotational symmetry of $360/n$ degrees.